Unfinished Learning Series
Math Community of Practice

Session 3:
Plan & Take Action Part I
Planning & Delivering Acceleration Supports

Diagnosing Unfinished Learning Reflection
• What went well and what was challenging? • What did you learn? What might you do the same or differently next time?

Access Accelerate Math Landing Page
Accelerate Math

Access Accelerate Math Resources
Grade 4 Module 5 Lessons 12-15 Google Slides

Planning for Action Case Study Part I

Using the evidence from student work on the Eureka Acceleration Tool diagnostic screener, Ms. Hutchins formed four flexible groups based on student strengths, learning needs, and what she knows about her students' working preferences and schedules.

Learning Need	Evidence or from Diagnostic & Classwork	Strengths	Group
Develop conceptual understanding of fractions as numbers and magnitude of unit fractions	Misapplying whole number reasoning to compare fractions	Problem-Solving Listens to others speak	Malayah Kamal Joseph
Develop conceptual understanding of fractions as numbers and magnitude of unit fractions	Confusing numerator and denominator Misapplying whole number reasoning to compare fractions	Makes real world connections	Jamir **Meet with Mrs. Teal*
Develop conceptual understanding of fractions as equal sized parts of a whole	Using the number of parts to compare instead of the size of the parts	Work well together Explain reasoning	Bryce Richard
Develop accurate representations for visual fraction models	No models drawn or have not yet developed equipartitioning strategies	Notice patterns	Neveah Edwin Anniyah

After assigning students to fluid groups, Ms. Hutchins determines she will begin the small group sessions with 3 of the 4 groups two weeks before starting the fraction comparison topic with the class, and with the fourth group the week prior to starting instruction on the grade level content.

Ms. Hutchins' school, Brightwood Academy, built a forty-five minute acceleration block into the daily schedule. Ms. Hutchins creates a schedule along with Mrs. Teal, a special education teacher with whom she often plans and co-teaches. They meet every Thursday during their common planning time to plan for small group sessions, reassess learning needs and adjust groups based on student work from sessions and class.

Week 1	Ms. Hutchins' Acceleration Block	Ms. Teals' Acceleration Block
Monday March 8th	Malayah, Kamal, Joseph	
Tuesday March 9th	Malayah, Kamal, Joseph	Jamir
Wednesday March 10th	Bryce, Richard	Jamir
Thursday March 11th	Bryce, Richard	Jamir
Friday, March 12th	Plan based on evidence from session 1 & classwork	
Week 2	**Ms. Hutchins' Acceleration Block**	**Ms. Teals' Acceleration Block**
Monday March 22nd	Neveah, Edwin Anniyah	Bryce, Richard *(if needed)*
Tuesday March 23rd	Neveah, Edwin Anniyah	Bryce, Richard *(if needed)*
Wednesday March 24th	Malayah, Kamal, Joseph	Jamir
Thursday March 25th	Malayah, Kamal, Joseph	Jamir
Friday, March 26th	Plan based on evidence from session 1-2 & classwork	

After planning for flexible groups and the timing of the sessions, Ms. Hutchins and Mrs. Teal turn their attention to planning for the content they will deliver in the small group sessions. They begin by going to the Louisiana Believes Accelerate Math landing page to identify acceleration support resources for the upcoming module lessons. Mrs. Teal has already been using the session 1 resources for Module 5 lessons 1-6 with Jamir. As she monitored Jamir's work in the previous week's tutoring session, she noted Jamir had an emerging understanding of fractions greater than 1. As a result, she'll focus on the additional practice problems from the Module 5 lessons 1- 6 session 2 resources that target fractions greater than 1 before starting the Module 5 Lesson 12-15 content. Knowing Jamir's strength around making real world connections, she also plans to bring in some real world objects to model the problems with concrete representations and connect to the visual models in the session materials. She also identifies the "Must-do" practice problems she will prioritize in the lesson 12-15 content based on Jamir's strengths and learning needs.

Ms. Hutchins plans to deliver the Module 5, Lessons 12-15 content to Malayah, Kamal, Joseph, Bryce, and Richard in the two weeks prior to starting the grade level lessons. She also identifies the "Must-do" practice problems she will prioritize with each group based on their learning needs. During the second week, she plans to use some of the additional practice items the groups did not complete during the first week session if needed based on evidence in the student work, or engage students in the Module 5, Lessons 16-19 content if needed based on evidence from classwork. Because Neveah, Edwin, and Anniyah's work on the diagnostic screener did demonstrate some understanding of comparing fractions with common numerators, but showed a need to develop equipartitioning skills to draw models, Ms. Hutchins anticipates they will need less time for the upcoming topic so she plans to meet with them twice during the second week of the accelerate cycle. She will also engage them in Module 5, Lessons 12-15 content if warranted by the evidence in their classwork. Ms. Hutchins and Mrs. Teal also decide Bryce and Richard will meet with Mrs. Teal for the session 2 content if needed based on their lesson 6 classwork and exit ticket.

Group	**Must-Do Problems**
Malayah, Kamal, Joseph	Slides 10, 16, 19, 22, 23, 25, 26
Jeremiah	Slides 10, 11, 16, 19, 20, 25, 27
Bryce, Richard	Slides 10, 16, 17, 19, 24, 25, 26, 27
Neveah, Edwin Anniyah	Slides 11, 19, 20, 21, 24, 25

Finally, Ms. Hutchins and Ms. Teal make a plan for preparing the materials they will need for the Module 5, Lesson 12-15 sessions. They note they will need to cut 1 x 9 red paper strips for each student, and print copies of the notebook paper template. Ms. Franklin, the grades 3-6, mathematics content lead, coordinates a group of volunteers who help prepare instructional materials needed for acceleration sessions. Ms. Hutchins fills out the *Volunteer Instructional Materials Prep* form with the logistical information for the materials and attaches the template to be copied for the session. Before closing out their planning meeting, they discuss the student work they will need to bring to their next meeting so they can monitor student progress and adjust groups and plans for week 2.

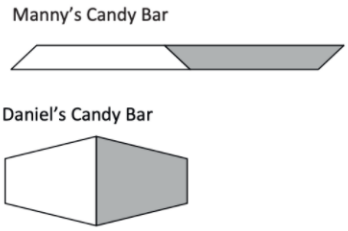
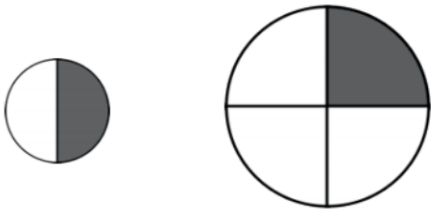
Breakout Room Discussion Questions
• What do you notice about how Ms. Hutchins planned for acceleration? • How does the plan address the learning needs identified from the diagnostic screener student work?

Whole Class Acceleration Supports Examples

Acceleration Support Example #1

Incorporate the warm up tasks below to build understanding of the significance of the whole when comparing fractions. At the end of the week, reassess student understanding of this concept using a variation of item 7 from the diagnostic screener.

Warm up tasks taken from Eureka, Grade 3, Module 5, Lesson 11

Day 1 Warm Up	**Day 2 Warm Up**
Manny and Daniel each ate $\frac{1}{2}$ of his candy, as shown below. Manny said he ate more candy than Daniel because his half is longer. Is he right? Explain your answer. 	Robert ate $\frac{1}{2}$ of a small pizza. Elizabeth ate $\frac{1}{4}$ of a large pizza. Elizabeth says, "My piece was larger than yours, so that means $\frac{1}{4} > \frac{1}{2}$ Is Elizabeth correct? Explain your answer. 
Day 3 Warm Up	**Day 4 Warm Up**
Tatiana ate $\frac{1}{3}$ of a small carrot. Louis ate $\frac{1}{6}$ of a large carrot. Who ate more? Use words and pictures to explain your answer.	Debbie ate $\frac{1}{8}$ of a large brownie. Julian ate $\frac{1}{2}$ of a small brownie. Julian says, "I ate more than you because $\frac{1}{2} > \frac{1}{8}$ a. Use pictures and words to explain Julian's mistake. b. How could you change the problem so that Julian is correct? Use pictures and words to explain.
Reassess	
For the inequality $\frac{1}{3} > \frac{1}{6}$ to be valid, what must be true?	

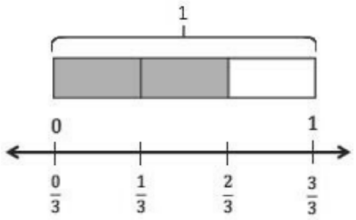
Acceleration Support Example #2

Eureka, Grade 4, Module 5, Lesson 12 Fluency Activity

Construct a Number Line with Fractions (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews Lesson 11.



T: (Write $\frac{2}{3}$.) Say the fraction.

S: 2 thirds.

T: On your personal white board, draw a tape diagram. Label the whole diagram 1, and then shade in units to show $\frac{2}{3}$.

S: (Draw a tape diagram partitioned into 3 equal units. Write 1 at the top. Shade 2 units.)

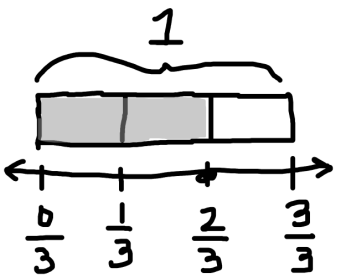
T: Beneath your tape diagram, draw a number line. Then, label each fraction on the number line.

S: (Beneath the tape diagram, draw a number line. Partition and label the number line into 3 equal intervals.)

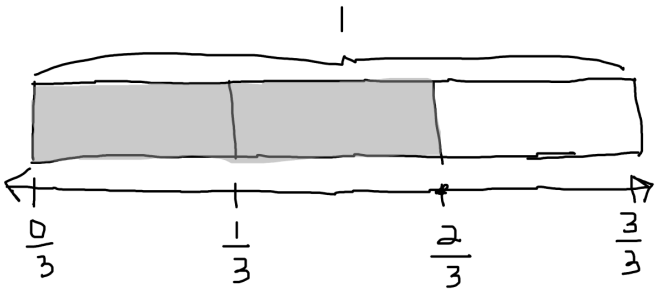
Continue with the following possible sequence: $\frac{2}{5}$, $\frac{3}{4}$, $\frac{3}{6}$, and $\frac{6}{9}$.

During this fluency activity, select two different student white boards, one that drew a shorter tape diagram and number line, and one that drew a longer tape diagram and number line. Ask students, ***"What is similar about these models? What is different about these models?"***

Student A



Student B



Similar	Different
• Both show 2 thirds on a tape diagram and number line. • Both labeled the whole. • Both used the tape diagram to partition and label each fraction on the number line. • Both show 2 thirds shaded and 1 third not shaded.	• The tape diagrams and number lines are different lengths. • The 2 thirds on Student A's board is smaller than the 2 thirds on Student B's board.

Ask students to think, pair, share, ***"Why are the 2 thirds different sizes on the students' boards?"***

Discuss, ***"Does the size of the whole unit matter when we draw fraction models? Why or why not?"***

If students are unsure, show a mini-candy bar and giant candy bar. Ask, "Would 2 thirds of the mini-candy bar be the same as 2 thirds of a giant candy bar?" Why or why not?

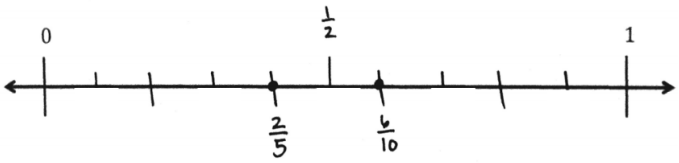
Stamp the Idea: The size of the whole unit matters! The size of a fraction depends on the size of the whole unit.

Acceleration Support Example #3

Eureka, Grade 4, Module 5, Lesson 13

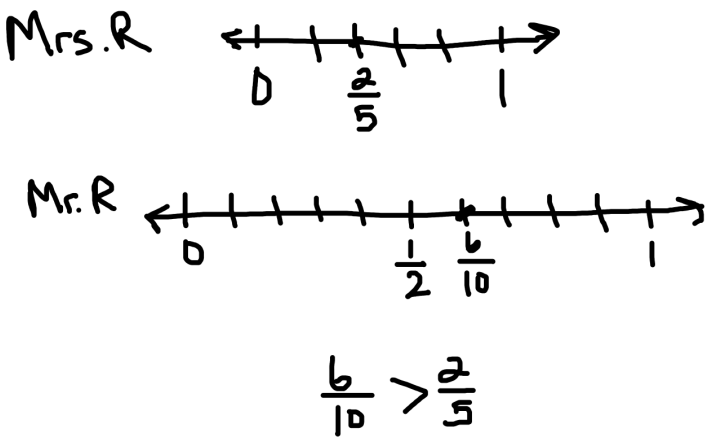
Application Problem (5 minutes)

Mr. and Mrs. Reynolds went for a run. Mr. Reynolds ran for $\frac{6}{10}$ mile. Mrs. Reynolds ran for $\frac{2}{5}$ mile. Who ran farther? Explain how you know. Use the benchmarks 0, $\frac{1}{2}$, and 1 to explain your answer.



Mr. Reynolds ran farther than Mrs. Reynolds. I know this because $\frac{2}{5}$ is less than $\frac{1}{2}$ and $\frac{6}{10}$ is greater than $\frac{1}{2}$. $\frac{6}{10} = \frac{3}{5}$ so $\frac{3}{5} > \frac{2}{5}$.

During the discussion of this application problem, look for student work showing 2 different number lines of different lengths to facilitate a My Favorite Mistake discussion. Use hypothetical student work if needed.



Pose the following questions for a My Favorite Mistake discussion:

- What do you notice about the number lines this student drew? *(One number line represents Mrs. Reynold's distance, and other represents Mr. Reynold's distance. The first number line is partitioned into fifths and the second is partitioned into tenths. The number line for Mrs. Reynold's distance is shorter than the number line for Mr. Reynold's distance).*
- What did this student do correctly? *(The student correctly….labeled each number line; partitioned each number line into fifths and tenths correctly; labeled 0, half, and 1 on the second number line; wrote a correct comparison sentence).*
- What flawed reasoning or errors might be in this student's work? *(The error in the student work is the half is not labeled on the first number line; the 0 and 1 should line up on each number line, or the whole unit should be the same length on each number line).*
- What does the 1 represent on each number line? *(1 mile)*
- If the two whole units both represent 1 mile, should they be different lengths? Why or why not? *(The whole represents 1 mile on both number lines. One mile is the same distance so the*

whole unit on each number line should be the same length).

- What questions might you ask this student? *(What does the 1 represent on each number line? Why did you make Mrs. Reynold's number line shorter than Mr. Reynold's number line?)*
- What might you say to this student to help him/her revise their number lines? (*The whole unit on each number line should be the same length because it represents 1 mile. In order to*
- What can we learn from this mistake? *(We need to be sure the whole units are the same length, or same size when comparing fractions).*

Acceleration Support Example #4

Engage the class in a mini-lesson using the grade 3 Concept Development below before starting Grade 4, Module 5 Lesson 12. Lesson 12 focuses on reasoning using benchmarks to compare two fractions on the same number line. Based on recent evidence from the Topic C diagnostic and classwork, I anticipate students will struggle to plot fractions with different denominators on the same number line in lesson 12 (grade level lesson). After doing the mini-lesson below, I will have students use two number lines to plot and compare the fractions for the first 2-3 examples in lesson 12 and connect to the mini-lesson by making sure the whole units they labeled on each number line are the same length. Then I will ask students how they could plot the fractions being compared in each example on one number line.

Eureka, Grade 3, Module 5 Lesson 11

Concept Development (32 minutes)

Materials: (T) 2 different-sized clear plastic cups, food coloring, water (S) Personal white board

T: (Write 1 is the same as 1.) Show thumbs up if you agree, thumbs down if you disagree.

S: (Show thumbs up or thumbs down.)

MP.6 T: 1 liter of soda and 1 can of soda. (Draw pictures or show objects.) Is 1 still the same as 1? Turn and talk to your partner.

S: Yes, they're still the same amount. → No, a liter and a can are different. → How *many* stays the same, but a liter is larger than a can, so how *much* in each is different.

T: How *many* and how *much* are important to our question. In this case, *what* each thing is changes it, too. Because a liter is larger, it has more soda than a can. Talk to a partner: How does this change your thinking about *1 is the same as 1?*

MP.6 S: If the thing is larger, then it has more. → Even though the number of things is the same, *what* it is might change how *much* of it there is. → If *what* it is and how *much* it is are different, then 1 and 1 aren't exactly the same.

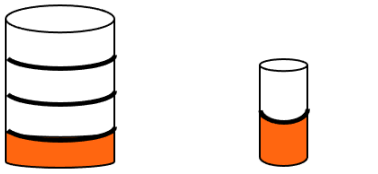
T: As you compare 1 and 1, I hear you say that the size of the whole *and* how much is in it matters. The same is true when comparing fractions.

T: For breakfast this morning, my brother and I each had a glass of juice. (Present different-sized glasses partitioned into halves and fourths.) What fraction of my glass has juice?

S: 1 fourth.

T: What fraction of my brother's glass has juice?

S: 1 half.



My glass My brother's glass

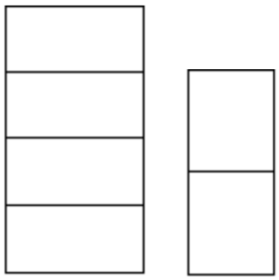
T: When the wholes are the same, 1 half is greater than 1 fourth. Does this picture prove that? Discuss it with your partner.

S: 1 half is always larger than 1 fourth. → It looks like you might have drunk more, but the wholes aren't the same. → The glasses are different sizes—like the can and the liter of soda. We can't really compare.

T: I'm hearing you say that we have to consider the size of the whole when we compare fractions.

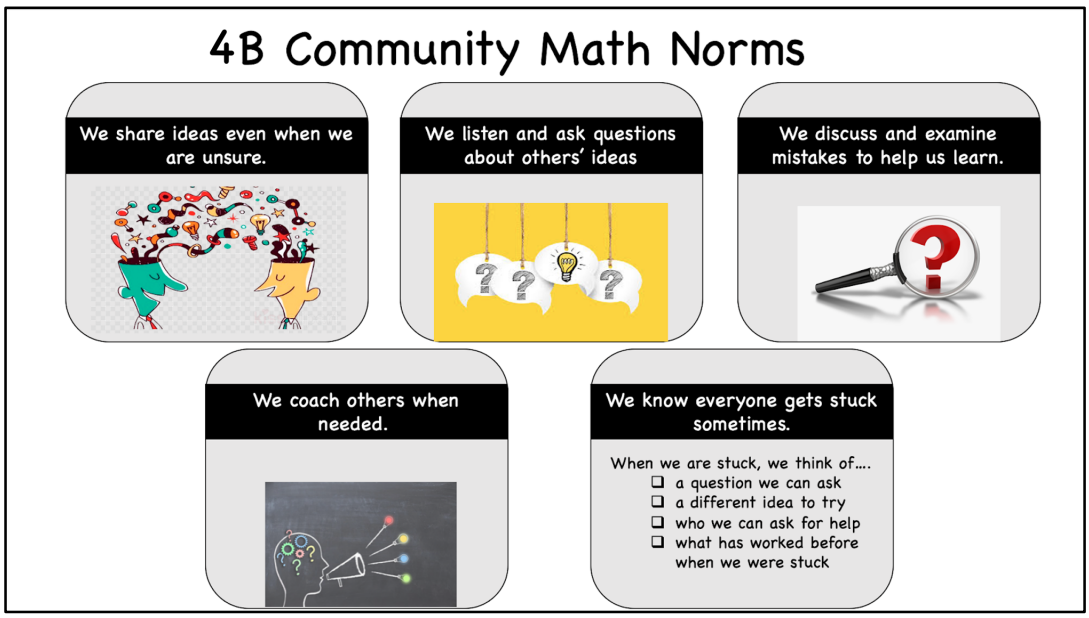
To further illustrate the point, pour each glass of juice into containers that are the same size. It may be helpful to purposefully select your containers so that 1 fourth of the large glass is the larger quantity.

To transition into the pictorial work with wholes that are the same, offer another concrete example. This time use rectangular shaped *wholes* that are different in size, such as those shown to the right.



Delivering Acceleration Supports Case Study I

Ms. Hutchins begins the lesson by welcoming her students and having them share one thing that they are truly great at and one thing they are currently getting better at. She starts every session this way to learn more about her students and keep a pulse on how students are seeing themselves as learners. Ms. Hutchins then reminds students of their math norms and names that in today's session she wants the group to work on asking questions about other's ideas.



She shows the session 1 welcome slide to share the "I can" statement they will be working on today, and asks students to share something they think they already know about comparing fractions with the same numerators. After reading the application problem three times and having students visualize the application problem to set them up to work independently, Ms. Hutchins has students draw their models of the problem on their white boards. She then asks them to show their boards so she can see their thinking. She notes Kamal has drawn the two hot dogs referenced the problem side-by-side and the hot dogs are different lengths which lead him to an inaccurate conclusion. Malayah also drew a picture of the hot dogs, but aligned them to show they were the same length. Ms. Hutchins quickly redraws two of the student models on a whiteboard under her document camera and asks the group to discuss how the models are similar and different.

During the discussion, Kamal names he would revise his drawing by making his pictures of the hot dogs the same length because the hot dogs in the problem were equal-sized hot dogs. Joseph shares he noticed the size of the parts got smaller the more parts the hot dog was cut into. Ms. Hutchins asks Malayah to restate Joseph's observation in her own words. Malayah asks Joseph to repeat what he said one more time, and then rephrases, *"When the whole hot dog was only cut into three equal parts, the parts were bigger, but when it was cut into six equals parts, the parts were smaller. It's like the M&M division story. When we divided the*

M&Ms with more and more people, each person got less M&Ms." Ms. Hutchins acknowledges Malayah just made a really helpful connection between division and fractions.

After drawing models to compare $\frac{3}{4}$ and $\frac{3}{8}$ Ms. Hutchins explains the group is going to play a comparison game. Malayah will start by drawing a whole, partitioning it into equal parts, and shading a fraction of the whole. Joseph's challenge is to draw a fraction that is less than Malayah's using the same whole and same number of shaded parts. Kamal will then check both players' fraction models, and write a comparison sentence to compare the two fractions. For the first round, Malayah draws draws $\frac{2}{4}$ and Joseph draws $\frac{2}{3}$. Kamal confirms both fractions have the same shape whole, but Malayah's tape diagram is longer than Joseph's. Ms. Hutchins asks him if that matters. Kamal says he's not sure and Ms. Hutchins asks Malayah and Joseph what they think. Joseph says it doesn't as long as the whole is the same shape. Malayah isn't sure, but she thinks it might matter because it's like the hot dog problem and both hot dogs were the same size. Ms. Hutchins suggests having Joseph draw his model below Malayah's on the screen to make the tape diagrams the same length. After redrawing his tape diagram, Joseph realizes $\frac{2}{3}$ is actually more than $\frac{2}{4}$ because thirds are larger parts than fourths even though 3 is less than 4. He asks if he can revise his fraction model, and draws $\frac{2}{8}$ noting he just split each of Malayah's fourths in half.

As the students continue to draw models and work on the independent practice problems during the session, Ms. Hutchins continues to ask student probing questions like, *"Why does it make sense* $\frac{4}{6}$ *is greater than* $\frac{4}{12}$*?*," and "*When two fractions have the same numerator, but different denominators, how do you know which fraction is the greater fraction?"* She also asks students to share their responses and asks the other members of the group if they have any compliments or questions for the student who shared the response. Malayah compliments Joseph on labeling the whole unit, and asks how he made seven equal parts. Joseph shared he thought about what sixths would look like first, and knew the sevenths would be slightly smaller parts.

Ms. Hutchins closes the session by asking students to share something they learned about comparing fractions while listening to another classmate during today's session. After the session, Ms. Hutchins jots down some notes and questions she wants to be sure to focus on during tomorrow's session based on what she noticed in the students' work during the session.

- On slide 19 ask: How much water was left in each of the girls' bottles? How do you know? Which girl has more water left? How can you prove it?
- On slides 22-23 be sure to have students read the comparison sentences and complete the sentence frame ___ is less than/greater than ___ because…..

Delivering Acceleration Supports Case Study II

Ms. Fields begins her lesson by instructing students to read the session objective and get their materials ready. She tells students that they will be working on comparing fractions with the same numerators so they can catch up and be ready for fourth grade math. After reading the application problem that starts the session, Ms. Fields instructs students to draw two tape diagrams on their white boards like she just did on the paper under the document camera. She then thinks-aloud and models what she would do next to partition the two tape diagrams to match the hot dogs that are referenced in the problem. After partitioning the tape diagrams, she instructs students to shade $\frac{2}{3}$ of the first tape diagram and asks them how many pieces they need to shade in the second tape diagram to match the shaded amount in the first tape diagram. Jaleel answers correctly, 4 pieces, and she instructs the other two students to shade 4 pieces on their tape diagrams. Ms. Fields directs the group to erase their boards to move to the next problem. After having them draw two circles to represent pizzas on their boards, she reminds them to make sure the circles are the same size. She then shows them how to partition the first circle into fourths and the second circle into eighths.

Ms. Fields: Now shade in 3 pieces in each circle. Which fraction is greater, $\frac{3}{4}$ *or* $\frac{3}{8}$*?*

Brian: $\frac{3}{8}$ is more because that pizza has more slices in it.

Ms. Fields: Yes, that's true but the fourths are bigger slices than the eighths so $\frac{3}{4}$ is the greater fraction. Comparing fractions with the same numerator is actually very easy, because you just need to look at which fraction has the smaller number in the denominator. The fraction with the smaller number in the denominator will be the larger fraction.

She models two more of the independent practice problems and has the students copy her work on their boards. Then she has the students try one of the problems on their own. After working for 2 minutes independently, Jaleel tells Ms. Fields he doesn't know how to make fifths on a number line. Ms. Fields draws a number line under the document camera and tells Jaleel to make four lines like hers because that will make five parts. Below the first number line with fifths, she draws a second number line and partitions it into ninths.

Ms. Fields: So which fraction is greater, $\frac{3}{5}$ *or* $\frac{3}{9}$*?*

Jaleel: $\frac{3}{5}$ because it has the smaller number at the bottom.

Ms. Fields: Yes, very good. That's right.

Ms. Fields closes the lesson by asking students if they have any questions. None of the students respond. She tells them they are showing improvement and they will continue practicing tomorrow.

Access Effective Mathematics Teaching Practices
Effective Mathematics Teaching Practices

Access Ms. Hutchins' Monitoring Tool
Monitoring Tool

Pause Point
• To what extent is this work with planning and delivering acceleration supports currently happening at your school/in your classroom? • What has been successful and/or what conditions are in place to support this work happening? • What has been challenging? • What potential barriers might you anticipate?